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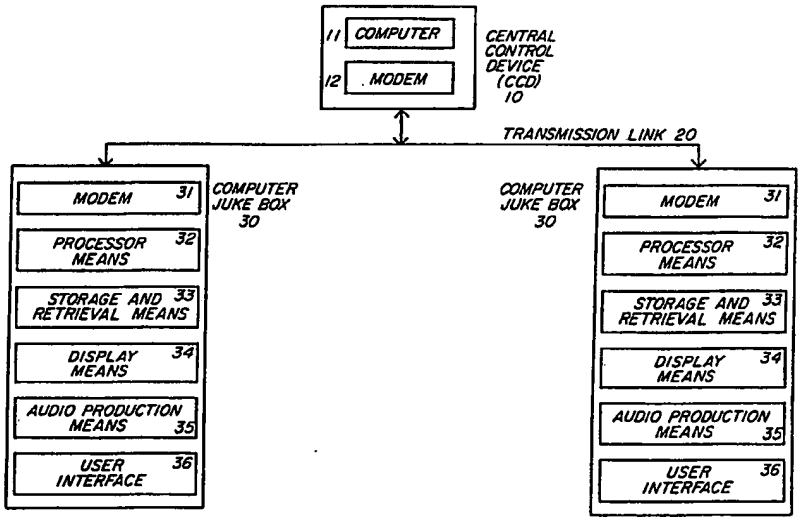
(54) Title: SYSTEM FOR REMOTING MANAGING A PLURALITY OF COMPUTER JUKEBOXES AT DIFFERENT LOCATIONS FROM A CENTRALIZED LOCATION

(57) Abstract

A method and apparatus for managing a plurality of computer jukeboxes (30) at different locations, wherein a central control device (CCD) (10) communicates with each computer jukebox (30) via non-dedicated public telephone lines (20). Each computer jukebox (30) includes processor means (32) for controlling the computer jukebox (30), storage and retrieval means (33) for data, displays means (34) for selection menus, audio production means (35) for playing musical recordings, a converter for communicating via non-dedicated public telephone lines (20), and a user interface (36) enabling patrons to communicate with the processor means. The CCD (10) can be used to download musical recording data to each computer jukebox (30), and each computer jukebox (30) can upload usage data to the CCD (10). The present invention allows for an elimination of routemen usually required to update jukebox recordings and obtain jukebox usage information. Communication between the CCD (10) and the computer jukebox (30) occurs during off-hours of establishments housing the computer jukeboxes (30), thus avoiding interference with the establishments' use of their own phone lines. As an alternative, routemen may physically visit each computer jukebox (30) to load new musical recordings into the memory of each computer jukebox (30) and obtain the computer jukebox usage data from each computer jukebox (30).



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System for Remoting Managing a Plurality of Computer Jukeboxes at Different Locations from a Centralized Location.

FIELD OF THE INVENTION

The present invention relates generally to managing entertainment machines, and more particularly to operating jukeboxes.

BACKGROUND OF THE INVENTION

Heretofore, an assortment of musical recordings found in a jukebox consists of a plurality of records, each record containing a specific recording. Traditionally, these records are grooved phonograph records. After a patron makes a selection, the selected phonograph record is mechanically removed from a storage rack within the jukebox, and the phonograph record is placed upon a rotating platform. A stylus which is connected to a speaker system is then placed upon the rotating phonograph record, resulting in the phonograph record being played by the jukebox. For each selection, a separate phonograph record must be removed from the storage rack in order to be played by the jukebox.

Conventional jukeboxes have also implemented compact disks as means for creating an assortment of musical recordings. Compact disks provide the improved sound quality made possible by digital

recordings. The same technique, however, is used to play compact disks. A separate compact disk corresponding to each selection must be removed from a storage rack in order for the jukebox to play the selection.

Updating conventional jukeboxes is a costly and time consuming task. Routemen must periodically travel to each jukebox location and replace the existing recordings of each jukebox with up-to-date recordings. The existing recordings are no longer used by the jukebox once removed, thus making the conventional method wasteful.

Routemen must also travel to each jukebox location to keep a tally of the number of times each musical recording is selected in order to determine royalty fees. It is known to provide a jukebox with a counter that keeps track of the number of times each musical recording is selected, but routemen must still travel to each jukebox location to obtain this information. Such a process requires an excessive number of people to visit each jukebox location periodically and visually read the information off the counter within each jukebox. Since the number of jukeboxes in operation is quite large, the employment of routemen to obtain such data involves a

considerable expense. Furthermore, the ever changing nature of the recording industry requires that such data be gathered frequently in order to keep abreast of a continually changing market.

OBJECTS AND SUMMARY OF THE INVENTION

Accordingly, it is a primary object of the present invention to provide a method and apparatus for managing a plurality of computer jukeboxes which is capable of eliminating the necessity for routemen to change records in the jukeboxes. The computer jukeboxes store recordings in memory, thus enabling routemen to simply load new recordings into the memory of each computer jukebox.

Another object of the present invention is to eliminate a necessity for routemen by enabling new recordings and selection menus to be downloaded to each computer jukebox via a transmission link. In that regard, it is an object of the present invention to provide a method and apparatus which eliminates the material waste usually associated with updating jukeboxes. Instead of throwing away old recordings and replacing them with new ones, as is the conventional procedure, the present invention eliminates this waste by enabling new recordings to

simply be downloaded into the memory of each computer jukebox. The old recordings are simply erased, if necessary.

Another object of the present invention is to provide a method and apparatus which is capable of remotely obtaining jukebox usage data, thus eliminating a necessity for routemen to do this task. The present invention utilizes a computer jukebox, which as part of its software programming, stores the number of times each musical recording is played and the number of credits that have been awarded. This data is uploaded to a central control device via a transmission link.

An additional object of the present invention is to provide a method and apparatus utilizing modern computer technology to digitally store and play musical recordings. The jukebox of the present invention is basically a computer having a sophisticated audio production capability.

A further object of the present invention is to provide a method and apparatus capable of being used with the remote management of jukeboxes via public telephone lines without interfering with establishments' use of their own phone lines. A central control device may only communicate with the

jukeboxes during off-hours of the establishments in which the computer jukeboxes are located, thus avoiding interference with the establishments' use of their phone lines during working hours.

Other objects, features and advantages of the present invention will be readily apparent from the following description of certain preferred embodiments thereof taken in conjunction with the accompanying drawing, although variations and modifications may be effected without departing from the spirit and scope of the novel concepts of the disclosure.

BRIEF DESCRIPTION OF THE DRAWING

The figure is a block diagram of the preferred embodiment of the present invention illustrating two different locations with a computer jukebox at each location. The block diagram, however, is intended to depict that a plurality of different locations can be connected to a transmission link.

While the invention will be described in connection with the preferred embodiment, there is no intent to limit it to that embodiment. On the contrary, the intent is to cover all its alternatives, modifications and equivalents included within the

spirit and scope of the invention as defined by the claims.

DESCRIPTION OF THE PREFERRED EMBODIMENTS

Turning now to the drawing, the figure is a block diagram of the preferred embodiment of the present invention. A central control device (CCD) 10 is located remotely from a plurality of computer jukeboxes 30. The CCD 10 is comprised of a computer 11 including a modem 12.

The CCD 10 maintains communication with each computer jukebox 30 via a transmission link 20. In the preferred embodiment, the transmission link 20 is a conveniently existing cable system such as the lines of a public or private telephone system or the like. Both the modem 12 of the CCD 10 and a modem 31 of each computer jukebox enable communication to occur via the transmission link 20. The modems convert the signals of the computers into signals that can be transmitted over the transmission link 20. The modems also convert transmission link signals into signals the computers can understand.

Each computer jukebox 30 includes a modem 31, processor means 32, storage and retrieval means 33, display means 34, audio production means 35, and a

user interface 36. The computer jukebox 30 is basically a computer having a sophisticated audio production capability.

The processor means 32 include a microprocessor which substantially controls the computer jukebox 30. The software program that directs the computer jukebox 30 is stored in the storage and retrieval means 33. The storage and retrieval means 33 include a ROM and an additional large-volume data storage means. The software for the computer jukebox 30 is stored in the ROM. Musical recording data and computer jukebox usage data is stored in the large-volume data storage means. The large-volume data storage means can include any of the presently available large-volume storage devices used by computers.

The display means 34 provide patrons with selection menus from which they can choose recordings to be played by the computer jukebox 30. The display means 34 in the preferred embodiment are a video monitor. The selection menus are stored in the large-volume storage means.

The audio production means 35 enable the digitally stored musical recording to played by the computer jukebox 30. The audio production means 35 include a sophisticated speaker system in combination

with a converter capable of producing audio music from digitally stored recordings.

The user interface 36 enables patrons to communicate with the processor means 32. In the preferred embodiment the user interface includes a coin slot mechanism, musical recording selectors, and the like.

In the preferred embodiment, the CCD 10 periodically communicates with each computer jukebox 30 via the transmission link 20. During this communication, the CCD 10 digitally downloads new musical recording data to each computer jukebox 30. The musical recording data includes both musical recordings and new selection menus. Each computer jukebox 30 stores received musical recording data in its large-volume storage means. Depending upon the type of large-volume storage means used, a computer jukebox 30 may erase preexisting musical recording data to free the necessary memory required to store the new musical recording data.

Also during communication between the CCD 10 and a computer jukebox 30, the computer jukebox 30 digitally uploads computer jukebox usage data to the CCD 10. Computer jukebox usage data includes the number of times a computer jukebox 30 has been used

(i.e., the number of awarded credits) and the number of times each specific musical recording has been played. This data enables the CCD 10 to determine how much money a computer jukebox 30 has received and the royalty fees for each musical recording.

The CCD 10 is programmed to communicate with computer jukeboxes 30 during respective off-hours of each establishment housing a computer jukebox 30. This period of time usually occurs when an establishment is closed. The CCD 10 communicates with the computer jukeboxes 30 during the off-hours so that the transfer of data avoids interfering with the ability of each establishment to use their own phone lines. Furthermore, since the CCD 10 is designed to communicate with the computer jukeboxes 30 during the off-hours, the present invention does not require the use of dedicated phone lines as a transmission link 20.

While the present invention is being described and illustrated in accordance with the preferred embodiment enabling new recordings and computer usage data to be transferred via a transmission link 20, the new recordings and computer usage data may be manually transferred by routemen who physically visit each computer jukebox location. In this embodiment,

routemen manually load new recordings into the memory of each computer jukebox 30 and read the computer usage data from each computer jukebox 30. Routemen may simply load the new recordings into the large volume storage means of each computer jukebox 30, or even replace a disposable high density storage medium if the computer jukeboxes 30 utilize such a feature. Such an embodiment still enjoys the advantages made possible by the computer jukeboxes 30.

We claim as our invention:

1. A method of managing a plurality of computer jukeboxes, comprising in combination:

providing a plurality of computer jukeboxes, each computer jukebox including processor means for controlling the computer jukebox, storage and retrieval means for data, display means for selection menus, audio production means for playing recordings, and a user interface enabling patrons to communicate with the processor means; and

updating each computer jukebox's library of musical recordings by loading new musical recordings into the storage and retrieval means of each computer jukebox.

2. The method of managing a plurality of computer jukeboxes as defined in claim 1, further comprising:

providing a plurality of computer jukeboxes at different locations, each computer jukebox including a converter for communicating via a transmission link;

providing a central control device (CCD), wherein the CCD is a computer including a converter;

connecting the plurality of computer jukeboxes via the transmission link to the CCD; and

communicating data between the CCD and the plurality of computer jukeboxes at different locations via the transmission link.

3. The method of managing a plurality of computer jukeboxes at different locations as defined in claim 2, wherein the communicating data includes downloading musical recording data from the CCD to each computer jukebox.

4. The method of managing a plurality of computer jukeboxes at different locations as defined in claim 2, wherein the communicating data includes uploading computer jukebox usage data from each computer jukebox to the CCD.

5. The method of managing a plurality of computer jukeboxes at different locations as defined in claim 2, wherein the communicating data includes selection menus that are presented on the display means whereby the patrons choose recordings to be played by the computer jukeboxes.

6. The method of managing a plurality of computer jukeboxes at different locations as defined

in claim 2, wherein the communicating data is stored and transferred digitally.

7. The method of managing a plurality of computer jukeboxes at different locations as defined in claim 2, wherein the communicating data includes number of credits awarded to the computer jukebox and number of times each musical recording has been played by the computer jukebox.

8. The method of managing a plurality of computer jukeboxes at different locations as defined in claim 2, wherein the transmission link is non-dedicated public telephone lines.

9. The method of managing a plurality of computer jukeboxes at different locations as defined in claim 8, wherein the converters are modems.

10. The method of managing a plurality of computer jukeboxes at different locations as defined in claim 9, wherein software controlling the CCD directs the CCD to communicate with each computer jukebox during off-hours of establishments in which the computer jukeboxes are located, whereby

communicating data during the off-hours avoids interference with the establishments' use of their own phone lines.

11. A system for managing a plurality of computer jukeboxes, comprising:

said computer jukeboxes including processor means for substantially controlling the computer jukeboxes, storage and retrieval means for data, display means for selection menus, audio production means for playing recordings, and a user interface enabling patrons to communicate with the processor means; and

loading musical recording data into the storage and retrieval means for data of each computer jukebox.

12. A system for managing a plurality of computer jukeboxes as defined in claim 11, further comprising:

said plurality of computer jukeboxes are at different remote locations and the computer jukeboxes further include converters for communicating via a transmission link;

a central control device (CCD), wherein the CCD is a computer including a converter; and

said transmission link enabling the CCD and the plurality of computer jukeboxes to communicate data to each other.

13. The system for managing a plurality of computer jukeboxes at different locations as defined in claim 12, wherein communicated data includes musical recording data which is downloaded from the CCD to each computer jukebox.

14. The system for managing a plurality of computer jukeboxes at different locations as defined in claim 12, wherein communicated data includes computer jukebox usage data which is uploaded from each computer jukebox to the CCD.

15. The system for managing a plurality of computer jukeboxes at different locations as defined in claim 12, wherein communicated data includes selection menus that are presented on the display means whereby the patrons choose recordings to be played by the computer jukebox.

16. The system for managing a plurality of computer jukeboxes at different locations as defined in claim 12, wherein communicated data is stored and transferred digitally.

17. The system for managing a plurality of computer jukeboxes located at different locations as defined in claim 12, wherein communicated data includes:

number of credits awarded to a computer jukebox; and

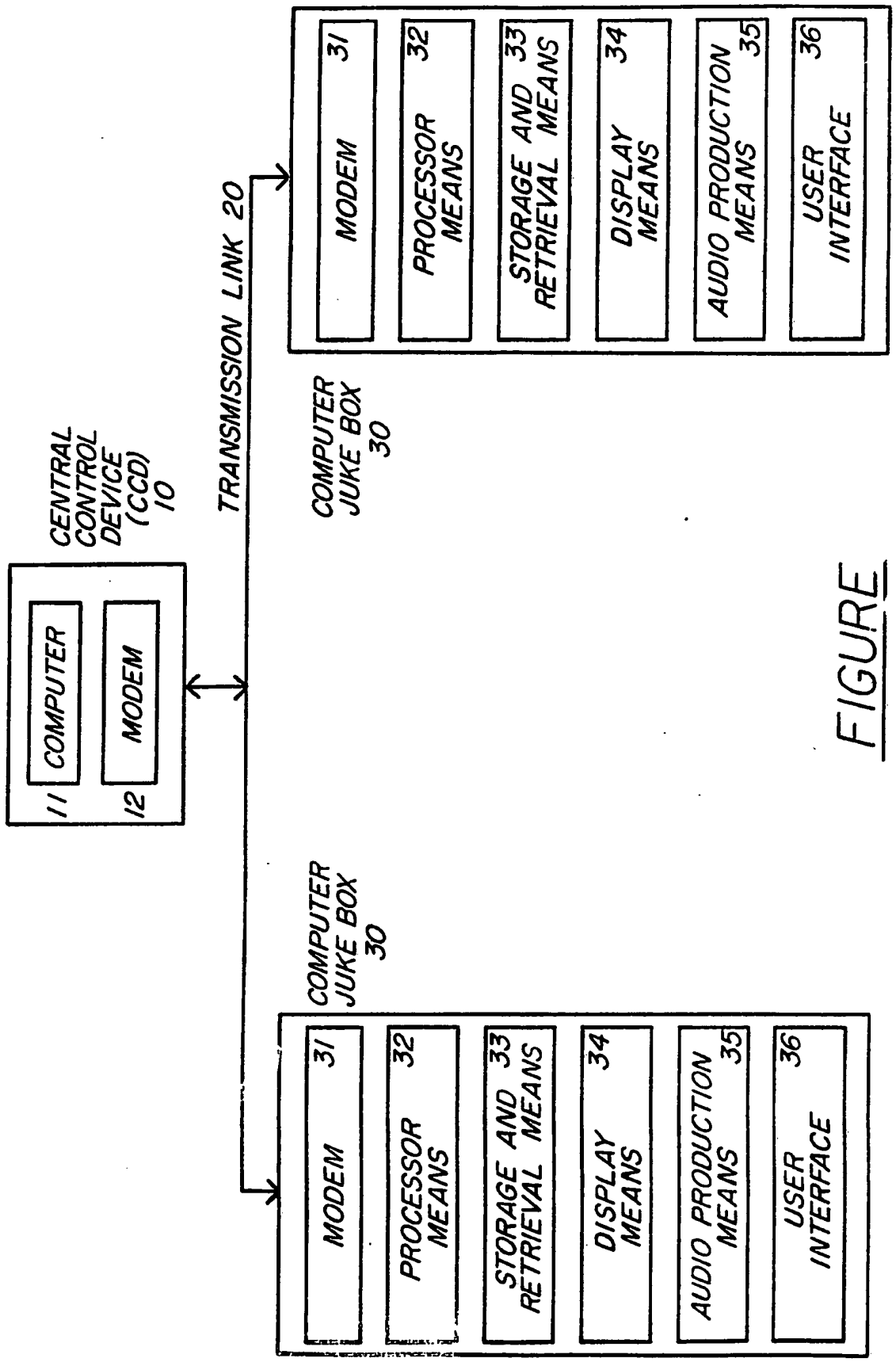
number of times each musical recording has been played by a computer jukebox.

18. The system for managing a plurality of computer jukeboxes at different locations as defined in claim 12, wherein the transmission link is non-dedicated public telephone lines.

19. The system for managing a plurality of computer jukeboxes at different locations as defined in claim 18, wherein the converters are modems.

20. The system for managing a plurality of computer jukeboxes at different locations as defined

in claim 19, wherein software controlling the CCD directs the CCD to communicate with each computer jukebox during off-hours of establishments in which the computer jukeboxes are located, and whereby communicating data during the off-hours avoids interference with the establishments' use of their own phone lines.



FIGURE